Unity or diversity? Task profiles of general practitioners in Central and Eastern Europe

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Unity or diversity?

Task profiles of general practitioners in Central and Eastern Europe

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Background: The countries of Central and Eastern Europe, where – until the end of the 1980s – the Semashko health care system prevailed, are often perceived as a homogeneous group. If this highly centralized system, with its tight state control, together with the 'equalizing' influence of communism, has led to a uniformity in the provision of health services, this could be reflected in the service profiles of general practitioners (GPs). The aim of this paper was to find out whether this picture is justified and investigate differences between the former communist countries. Methods: In 1993 and 1994, standardized questionnaires were sent to (mostly random) samples of GPs (7,233 in total) in 30 European countries. Four areas of service provision were measured: the GPs' position in first contact with health problems and their involvement in the application of medical techniques, disease management and preventive medicine. Variation patterns and mean scores were analyzed by way of multilevel analysis. Results: There is no more uniformity in Central and Eastern Europe than in Western Europe. In Eastern Europe there are in fact considerable differences: GPs in former Yugoslavia have the most comprehensive service profile, whereas the lowest scores were found among doctors in the former Soviet Union. The countries which had a social insurance system before the Second World War, such as the Czech republic and Hungary, are situated in between. Conclusions: There are distinctive national differences in GPs' task profiles in Central and Eastern Europe, which provide clues for the country-specific design and implementation of primary care-oriented reforms.

Keywords: Central and Eastern Europe, general practice, international comparison, task performance, task profiles

Until the fall of communism in 1989, three basic types of health care systems could be distinguished in Europe. The Beveridge (tax-based NHS) system prevailed in Northwestern Europe, i.e. in the UK, Ireland and Scandinavia and in Southern Europe, i.e. in Spain, Portugal and Italy. The Bismarck (social insurance) model was current in all other Western European countries, e.g. Germany, France and The Netherlands. Finally, the Soviet Semashko model existed in the former socialist countries of Central and Eastern Europe.[1–3] In this paper we will focus on the countries in which – until the end of the 1980s – the Semashko system prevailed.

The Semashko health care system was developed in the former Soviet Union and subsequently spread over Central and Eastern Europe. It is a centralized, tax-based, health care system with physicians as salaried state employees. There is a heavy focus on specialist and hospital care in this system and the Western type of general practitioner (GP) who gives comprehensive and continuing care to an individual does not exist.[4–9] Primary care is basically provided in out-patient clinics, known as polyclinics, by three types of doctor: the paediatrician treats children (up to an age of about 15 years), a gynaecologist takes care of women's problems and general adult care is provided by a generalist, called a therapist.[3–5,7] The generalists, the doctors that most closely resemble the Western European GP, do not have a gatekeeping function and their pay and status are relatively low.[3–5,10–12] In addition, the range of their medical tasks is limited.[13,14]

The countries of Central and Eastern Europe all had a highly centralized health care system with tight state control and were exposed to the 'equalizing' influence of 50 years of communism. We expected that this would have led to uniformity in the provision of health services. We investigated this in the task profiles of GPs, which indicate GPs' involvement in various medical tasks and activities. We expected that the professional behaviour of GPs would be more uniform in Eastern Europe compared to Western Europe in two senses: we anticipated less variation between Eastern European countries and less variation among individual GPs within Eastern European countries. The first aim of this paper was to determine whether this picture of uniformity in Eastern Europe is justified.

Within this presumed uniformity, we expected differences between the countries in Central and Eastern Europe as well. Around the Second World War, they all adopted the Semashko model, but modeled it according to their own needs and circumstances. As a result, none of these systems is identical and several national variations of the Semashko system have been created.[6]

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Two factors could account for these differences. Firstly, their initial situations were not similar: the pre-war health care system was a factor of influence. Secondly, the countries of Central and Eastern Europe were exposed to varying degrees of influence from the Soviet Union and, as a consequence, the countries differed to the extent to which they adapted their health care system to the Russian system. The geographical and cultural distance from the former Soviet Union may have well played an important role in this.[3,4,6,15,16] These differences between the countries will be reflected in the service profiles of GPs. We expected to find weaker task profiles for the countries which were more heavily influenced by the former Soviet Union. The second focus of this paper is thus to examine differences between the former communist countries.

In short, the following three hypotheses were formulated.

- 1 The variation in the task profiles of GPs between Eastern European countries is less than the variation between Western European countries.
- 2 The variation in the task profiles of GPs within Eastern European countries is less than the variation within Western European countries.
- 3 The stronger the influence of the former Soviet Union, the weaker the task profile of GPs in that country.

METHOD AND ANALYSIS

The data that were used for this study came from the European Survey of the Task Profiles of General Practitioners. This study was designed to describe and explain differences in the position and tasks of GPs and primary care physicians in Europe. The data were collected in 1993 and 1994 by means of a standard questionnaire, translated into national languages. In the countries of Central and Eastern Europe, where GPs are virtually unknown, generalists were recruited. Most national samples were random and the average response rate was 47%. In total 7,233 GPs participated in the survey.

The concept of a task profile was elaborated in questions on the four key areas of activity of GPs, namely

- first contact with health problems,
- performing minor surgery and medical techniques,
- management and follow-up of diseases and
- preventive medicine.

The role of the GP in first contact with health problems, in the application of medical techniques and in the treatment and follow-up of diseases was examined in a series of questions. Respondents answered on a four-point scale, ranging from (almost) always to seldom/never, indicating the extent to which specific health problems were presented to them and the extent to which specific therapeutic interventions were made by them. The fourth area concerned prevention: involvement in screening for hypertension, blood cholesterol, cervical cancer and breast cancer, as well as in giving health education (regarding diet, tobacco smoking and alcohol consumption) was measured.

In the analysis of the data, a scaling procedure was used to identify skewness and inconsistency and this led to the exclusion of some items. This resulted in a total scale reliability given by Cronbach's $\alpha = 0.94$.[13,14] This exercise facilitated the linkage of questions which could be analysed as a single group. In this way, in the area concerning the role of the GP in first contact, four subscales were identified:

- health problems with children,
- women's health problems,
- psychosocial problems and
- acute health problems.

No subscales were identified in the other three areas.[13,14] For a more detailed description about sampling procedures, response rates, scoring of the questionnaires and about the reliability coefficients of the subscales, we refer to earlier publications.[13,14,17]

The first two hypotheses deal with differences in variation in tasks between Eastern and Western Europe and within Eastern Europe. Variance components were estimated using the multilevel analysis software MLn.[18] Multilevel analysis is, in this case, particularly useful in estimating the variation between GPs within countries because of the unequal numbers of GPs per country (unbalanced design).[19] Differences have been tested for significance using the χ^2 significance test for random contrasts.[20]

For hypothesis 3 on the level of task performance, the countries of Central and Eastern Europe were divided into four groups and mean scores were compared by performing analysis of variance, in a multilevel model. In group 1 we find the countries that formed an integral part of the Soviet Union for more than 50 years. They are likely to be most strongly influenced by the former Soviet Union. Group 2 are the countries which belonged – before 1918 – to the old Austro-Hungarian empire. These countries have always had close ties – politically and economically as well as culturally – with the West and had a Bismarckian social insurance system before 1945, which was considered quite advanced.[3,4,6] Group 3 consists of the countries of the former republic of Yugoslavia, which adopted a totally independent policy towards the former Soviet Union and which is probably the country least influenced by Soviet policies.[4,6,15,16] Finally, group 4 is a residual group with the countries which – on the basis of the above considerations – could not be placed in the other groups. Hence, no predictions could be made. In short, the groups are as follows.

- Group 1. Former Soviet: Ukraine, Estonia, Latvia and Lithuania.
- Group 2. Former Bismarck: Czech Republic, Slovakia and Hungary.
- Group 3. Former Yugoslavia: Slovenia and Croatia.
- Group 4. Other: Poland, Romania and Bulgaria.

RESULTS

First, we give an overview of the task profiles in Eastern and Western Europe as well as in the individual countries: the mean scores on the curative and preventive tasks of GPs are presented in *table 1*. A higher score indicates more involvement of GPs. For all activities, the mean scores of Western Europe are significantly higher than

those of Eastern Europe. The largest gap between the mean scores of Eastern and Western Europe is visible for GPs' role in first contact with health problems (2.24 versus 3.12) and in the application of medical techniques (1.52 versus 2.41). The differences between Eastern and Western Europe are much smaller for preventive care.

Variation between Eastern European countries

As regards curative services, we only found significantly less variation between Eastern European countries in applying medical techniques. This is visible in the lower estimate of 0.07 in *table 2*, compared with 0.31 for Western Europe. Variation between Eastern European countries is significantly larger than between Western European countries for acute health problems. For preventive tasks, significantly less variation between the countries of Eastern Europe was only found for assessing blood cholesterol (0.00 in Eastern Europe versus 0.03 in Western Europe).

Variation within Eastern European countries

For curative care, significantly less variation between GPs within Eastern European countries than within Western European countries was again only found in the use of medical technical procedures. For GPs' role as doctors of first contact and for disease management, significantly

Table 1 Mean scores of GP's involvement in curative and preventive services[a] in the Western and Eastern parts of Europe[b] per country

	A score[c]	B score[c]	C score[c]	D score[d]	E score[d]	F score[d]	G score[d]	H score[d]	Minimum n
Western Europe									
Austria	2.95	2.11	2.88	1.59	1.58	1.20	1.64	0.29	282
Belgium	3.01	2.49	2.78	1.38	1.32	1.61	1.63	0.14	479
Denmark	3.49	2.82	2.88	1.31	1.26	1.77	1.45	0.14	180
Finland	3.00	3.46	2.46	1.56	1.44	1.95	1.82	0.40	226
France	3.08	2.01	2.99	1.22	1.16	1.44	1.48	0.23	213
Germany	2.82	2.22	3.02	1.77	1.79	1.26	1.54	0.62	156
Greece	2.47	1.99	2.59	1.29	1.24	1.05	1.25	0.28	106
Iceland	3.10	3.19	2.77	1.62	1.35	1.65	1.63	0.47	47
Ireland	3.48	2.49	2.96	1.58	1.40	1.74	1.70	0.12	120
Italy	3.08	1.44	2.61	1.37	1.35	1.38	1.47	0.17	296
Luxembourg	2.63	2.16	2.68	1.26	1.17	1.09	1.24	0.11	48
The Netherlands	3.67	3.10	2.44	1.35	1.15	2.19	1.31	0.05	198
Norway	3.28	3.05	3.03	1.33	1.27	1.81	1.53	0.50	149
Portugal	3.22	1.74	2.71	1.74	1.37	2.05	1.94	1.09	145
Spain	3.20	1.77	2.43	1.75	1.69	1.16	1.43	0.18	454
Sweden	2.83	2.83	2.75	1.39	1.31	1.41	1.33	0.27	189
Switzerland	2.88	2.93	2.94	1.58	1.46	1.62	1.79	0.21	185
UK	3.51	2.83	3.06	2.17	1.62	2.37	1.94	0.66	272
Mean score	3.12[e]	2.41[e]	2.75[e]	1.54[e]	1.42[e]	1.57[e]	1.57[e]	0.30	
Eastern Europe									
Bulgaria	1.74	1.12	2.20	1.64	1.25	1.12	1.35	0.53	193
Croatia	3.14	1.77	2.81	1.31	1.15	0.98	1.26	0.44	160
Czech Republic	2.28	1.66	2.39	1.45	1.27	1.00	1.24	0.07	116
Estonia	2.06	1.29	2.55	1.56	1.21	1.14	1.36	0.49	136
Hungary	2.75	1.38	2.81	1.58	1.22	0.98	1.24	0.57	131
Latvia	1.96	1.58	2.57	1.58	1.19	1.56	1.67	0.11	135
Lithuania	1.71	1.10	2.40	1.37	1.26	n.a.	1.50	0.21	196
Poland	2.27	1.34	2.56	1.76	1.28	1.10	1.40	0.33	216
Rumania	2.36	1.80	2.34	1.45	1.16	1.24	1.27	0.99	178
Slovakia	2.14	1.42	2.30	1.22	1.20	0.94	1.09	0.15	119
Slovenia	2.87	1.99	2.41	1.22	1.17	1.02	1.17	0.42	134
Ukraine	2.05	1.76	2.55	1.32	1.17	1.16	1.31	1.80	294
Mean score	2.24	1.52	2.49	1.45	1.21	0.99	1.34	0.63	

a: A, first contact with health problems; B, involvement in the application of medical techniques; C, disease management; D, routinely measuring blood pressure; E, routinely assessing blood cholesterol levels; F, routinely taking cervical smears; G, routinely examining for breast cancer; H, involvement in health education.
b: In the survey, data were also collected from Turkey and Israel, because these countries also form part of the European Region of WHO. In our analyses, Israel was left out of the Western European group because it is not situated in Europe and, consequently, has had different influences in (the development of) its health care system. Turkey was dropped from the eastern European group because it has never been under the communist sphere of influence.
c: Possible scores ranging from 1–4
d: Possible scores ranging from 0–3
e: Significant differences with mean score of Eastern Europe

more variation was found within Eastern European countries. Within the area of first contact, significantly more variation within Eastern European countries was found for acute, women's and children's health problems, ranging from 0.44 to 0.83 for Eastern Europe and from 0.30 to 0.43 for Western Europe *(table 2)*.

For preventive activities, variation within Eastern European countries was significantly smaller than within Western European countries for assessing blood cholesterol (0.23 for Eastern Europe and 0.30 for Western Europe) and taking a cervical smear (0.30 and 0.43 respectively). For measuring blood pressure and giving health education, the variation within Eastern European countries was significantly larger.

Differences in task profiles in Eastern Europe

For all aspects of curative tasks, GPs in the countries of former Yugoslavia were most involved *(table 3)*. For example, for medical techniques, the differences ranged from 1.43 for GPs in the countries of the former Soviet Union to 1.87 for doctors in the countries of former Yugoslavia. Except for disease management, all differences between GPs in former Yugoslavia and the other three groups were significant. GPs in the Bismarck countries were significantly more involved than GPs in the former Soviet Union in the area of first contact with health problems. Within this area, significant differences were found for GPs' involvement with psychosocial and children's problems. For all curative task aspects (disease management excepted) the following pattern was observed: GPs in former Yugoslavia had the most comprehensive service profile, the lowest scores were found among doctors in the former Soviet Union and the Bismarck countries were situated in between. The position of group 4 varies: for example, for the GP as doctor of first contact, it ranks above the countries of the former Soviet Union and below the Bismarck countries, with a score of 2.12. For disease management, it has the lowest scores of all groups (2.37).

For preventive care, the pattern is different. GPs in the countries of former Yugoslavia were not most involved; in fact, in two of the five prevention tasks, they had the lowest involvement, e.g. for measuring blood pressure.

Table 2 Variation between and within the countries of Eastern and Western Europe for the curative and preventive services of the GP

	Variation between the countries		Variation within the countries	
	East n=12	West n=18	East n=12	West n=18
Curative tasks				
First contact	0.18	0.09	0.27[a]	0.24
Psychosocial problems	0.26	0.11	0.48	0.47
Acute problems	0.30[a]	0.05	0.51[a]	0.38
Women's problems	0.16	0.28	0.44[a]	0.30
Children's problems	0.17	0.13	0.83[a]	0.43
Medical techniques	0.07[a]	0.31	0.29[a]	0.34
Disease management	0.03	0.04	0.34[a]	0.32
Preventive tasks				
Blood pressure	0.02	0.05	0.49[a]	0.42
Blood cholesterol	0.00[a]	0.03	0.23[a]	0.30
Cervical smear	0.12	0.14	0.30[a]	0.43
Breast cancer	0.02	0.04	0.45	0.46
Health education	0.21	0.06	1.00[a]	0.60
Respondents (minimum n)	3,806	2,046	3,806	2,046

a: χ^2 test; significant difference at $p<0.05$

Table 3 Mean scores of GPs' involvement in curative and preventive services in four groups of Eastern European countries

	Group			
	Soviet n=4	Bismarck n=3	Yugoslavian n=2	Other n=3
Curative tasks				
First contact	1.95[a,b]	2.39[c]	3.01	2.12
Psychosocial problems	1.80[a,b]	2.59[c]	3.10	2.00
Acute problems	2.44[a,b]	3.28	3.70	2.60
Women's problems	1.87[b]	2.03[c]	2.79	1.98
Children's problems	1.75[b]	1.95[c]	2.61	2.14
Medical techniques	1.43[b]	1.49	1.88	1.42
Disease management	2.52	2.50	2.61	2.37
Preventive tasks				
Blood pressure	1.45	1.42	1.27	1.62
Blood cholesterol	1.20	1.23	1.16	1.23
Cervical smear	0.95	0.98	1.00	1.16
Breast cancer	1.45[a,b]	1.19	1.22	1.34
Health education	0.65	0.27	0.43	0.62
Respondents (minimum n)	778	366	294	594

Significant differences at $p<0.05$
a: Soviet–Bismarck, b: Soviet–Yugoslavian, c: Bismarck–Yugoslavian

GPs in the former Soviet Union, who were relatively little involved in some curative services, did well in preventive activities: they had highest scores for three preventive tasks, e.g. providing health education (0.65) and screening for breast cancer (1.45). The differences between the groups, however, were only significant for screening for breast cancer.

DISCUSSION

Our main finding was that there is no consistent pattern of more uniformity between and within Eastern European countries than between and within Western European countries. Thus, in our study the presumed strict state control in Eastern European countries did not result in more homogeneity of profiles. This is an interesting point of departure for further investigation of the differences in Central and Eastern Europe.

The strong service profile of Yugoslav doctors is a remarkable finding. Yugoslavia initially started to develop a Semashko health system, but by the beginning of the 1950s had abandoned this policy. Asserting his independence from Soviet dominance, the Yugoslav leader Tito went his own way. The unique feature of the health care system in Yugoslavia was the high degree of decentralized responsibility to the communities, which also played an important role in the operation of the system.[4,6,15,16] This seems to have had a beneficial influence on the range of tasks of primary care doctors.

As we expected, the weakest task profile was found among doctors in the former Soviet Union. Compared to this group, the scores of GPs in the Bismarck countries are quite good. This could be a relic of the large influence of Western medicine and the presence of a Bismarckian social insurance system before the Second World War.[3,4] The high scores of Hungary could be the result of one distinctive feature of the Hungarian system, namely the relatively strong position of the district doctor, a sort of Hungarian GP.[21,22]

Considerable differences are visible in group 4: the relatively high scores of Romania might be related to the fact that it has departed from Soviet policies by deliberately minimizing trends towards specialization, among others by reducing the number of specialties enormously. Moreover, much stress has been put on broad medical knowledge and its use in general practice. Around 1980, some 60% of all Romanian doctors were GPs, which contrasts sharply with other countries in Eastern Europe.[6] The scores of the Bulgarian doctors on the other hand were lowest and closely resembled the Soviet scores, although Bulgaria has never been part of the Soviet Union. Of all countries in Eastern Europe, Bulgaria has been most heavily influenced by the Soviets. For both economical and cultural-historical reasons, it has always been the most orthodox in its association with the former Soviet Union and this applies to its health services as well.[4,15] A distinctive pattern is visible for preventive activities: GPs in the countries of the former Soviet Union and Bulgaria were doing relatively well in preventive services. This could result from the old relatively strong orientation on prevention in the Soviet health care system.[4–8]

In concluding, we will also consider the validity of the data. In most of these countries health care reforms have been implemented since the beginning of the 1990s. The major changes have been the shift from a tax-based state monopoly to a decentralized social insurance system with privatizations in primary care. A common aim in the reforms is strengthening primary care and (re)introducing the GP.[2,3,23–27] The data for this study were collected in 1993–1994 and this raises the question whether the data are still valid as a reflection of the situation as it existed under communism. We believe that, to a large extent, it will be for two reasons. Firstly, in the first years after 1990, the reforms concerned the financing and organization of health care; the development of general practice started later.[2,3,23–27] Moreover, professional behavior does not change overnight. Changing attitudes and broadening the knowledge base and skills of health professionals is a time-consuming process, which takes many years. Therefore, the 'socialist legacy' will still be visible in the task profiles of primary care doctors and in our data this was visible in the fact that the vast majority of GPs were still salaried state employees, as in the old days.

This paper has outlined national differences between GPs in the countries of Central and Eastern Europe. The results reveal the strengths and weaknesses in the task profiles and can provide guidance for the development of training programmes for GPs, tailored to the needs of each of these countries: they show in which area the role of the GP is relatively weak and on which skills the emphasis needs to be placed. It can be concluded that, in general, developing skills for handling women's and children's problems as well as performing the necessary medical-technical procedures is an area of attention. Naturally, the achievement of this goal does not only depend on the skills of the physicians, but also on the availability of resources and legislative changes. Finally, repetition of this study would be useful, because it could throw light on the pace of the reforms and differences between Eastern European countries in developing primary care.

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REFERENCES

1 Vienonen MA, Wlodarczyk WC. Health care reforms on the European scene: evolution, revolution or seesaw? World Hlth Stat Quart 1993;(46):166-9.

2 Saltman RB, Figueras J. European health care reform: analysis of current strategies. Copenhagen: WHO Regional Office for Europe, 1997.

3 Marrée J, Groenewegen PP. Back to Bismarck: Eastern European health care systems in transition. Aldershot: Avebury, 1997.
4 Stephen WJ. An analysis of primary medical care: an international study. Cambridge: Cambridge University Press, 1979.
5 Raffel NK. USSR. In: Raffel MW, editor. Comparative health systems: descriptive analyses of fourteen national health systems. University Park/London: Pennsylvania State University Press, 1984.
6 Roemer MI. National health systems of the world. Volume I: the countries. New York/Oxford: Oxford University Press, 1991.
7 Birt CA, Kidd M, Peters G. Development of primary health care in Russia. In: Szakal G, Balogh E, Bojan F, editors. Health care reforms in central and eastern European countries. Proceedings of the Annual Meeting of the European Public Health Association (EUPHA): 1995 Dec 14-16; Budapest. Debrecen: University Medical School, 1996:1-7.
8 Davis CM. The Soviet health system: a national health service in a socialist society. In: Field MG, editor. Success and crisis in national health systems: a comparative approach. New York/London: Routledge, 1989:233-62.
9 Farmer RG, Goodman RA, Baldwin RJ. Health care and public health in the former Soviet Union, 1992. Ukraine: a case study. Ann Intern Med 1993;119(4):324-8.
10 Ryan M. The organization of Soviet medical care. Oxford: Basil Blackwell, 1978.
11 Field MG. The position of the Soviet physician: the bureaucratic professional. Milbank Quart 1988;66(2 Suppl):182-201.
12 Albrecht GL, Salmon JW. Soviet health care in the Glasnost era. In: Rosenthal MM, Frenkel M, editors. Health care systems and their patients: an international perspective. Boulder, CO Westview Press, 1992:247-71.
13 Boerma WGW, Van der Zee J, Fleming DM. Service profiles of general practitioners in Europe. B J Gen Pract 1997;47(8):481-6.
14 Boerma WGW, Fleming DM. The role of general practice in primary health care. St Crispins: The Stationery Office/WHO Regional Office for Europe, 1998.
15 Deacon B. Sociopolitics or social policy: Bulgarian welfare in transition? Int J Health Serv 1987;17(3):489-513.
16 Parmelee DE. Yugoslavia: health care under self-managing socialism. In: Field MG, editor. Success and crisis in national health systems: a comparative approach. New York/London: Routledge, 1989:165-91.
17 Boerma WGW, Grielen SJ. Backgrounds of the European GP task profile study: methods, instruments and analysis of response. Utrecht: NIVEL, forthcoming.
18 Rasbash J, Woodhouse G. MLn command reference. London: Institute of Education, University of London, 1995.
19 Bryk AS, Raudenbush SW. Hierarchical linear models. Newbury Park: Sage, 1992.
20 Woodhouse G, editor. A guide to MLn for new users. London: Institute of Education, University of London, 1995.
21 Szatmári M. De plaats van de huisarts in de Hongaarse gezondheidszorg (The position of the family physician in Hungarian health care). Medisch Contact 1984;4:117-20.
22 Visser J. Nederlandse steun aan huisartsen in Hongarije (Dutch support to family physicians in Hungary). De Huisarts in Nederland 1995;1:28-30.
23 Zarkovic G, Satzinger W. Politics and foreign involvement in reforming the health care systems of former socialist countries. In: Altenstetter C, Björkman JW, editors. Health policy reform, national variations and globalization. Basingstoke: Macmillan Press, 1997:255-78.
24 Háva P. Key issues of health care reform in Czech republic. In: Szakal G, Balogh E, Bojan F, editors. Health care reforms in Central and Eastern European countries. Proceedings of the Annual Meeting of the European Public Health Association (EUPHA); 1995 Dec 14-16; Budapest. Debrecen: University Medical School, 1996:37-45.
25 Orosz E. Main challenges for health policy in a period of socio-economic transformation in Hungary. In: Szakal G, Balogh E, Bojan F, editors. Health care reforms in Central and Eastern European countries. Proceedings of the Annual Meeting of the European Public Health Association (EUPHA); 1995 Dec 14-16; Budapest. Debrecen: University Medical School, 1996:113-23.
26 Mastilica M. Health care reform in Croatia. In: Szakal G, Balogh E, Bojan F, editors. Health care reforms in Central and Eastern European countries. Proceedings of the Annual Meeting of the European Public Health Association (EUPHA); 1995 Dec 14-16; Budapest. Debrecen: University Medical School, 1996:69-81.
27 Jack B, Nagy Z, Varga Z. Health care reform in Central and Eastern Europe. Eur J Gen Pract 1997;3(4):152-8.

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